



IAP15 Rec'd PCT/PTO 08 AUG 2006  
PCT

WRA0006-US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

FLEXMAN, et al.

Serial No.: 10/517,627

Filed: September 7, 2005

For: RECEIVE SYSTEM FOR HIGH Q  
ANTENNAS IN NQR AND A  
METHOD OF DETECTING  
SUBSTANCES

Art Unit: 2859

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir/Madam:

Applicants wish to make of record in the above-identified application the document or documents referenced on the attached Form PTO-1449. A copy of the non-U.S. patent references are enclosed herewith.

The undersigned believes that this Information Disclosure Statement is being filed before the mailing date of a first Office Action on the merits for the above-referenced application. Accordingly, Applicants do not believe that a fee is due for filing this paper. However, should a first action on the merits have been issued on the same day or before this Information Disclosure Statement is filed, please accept this Information Disclosure Statement under Rule 97(c) and charge the requisite Rule 17(p) fee to our Deposit Account No. 03-3975, under Order No. WRA0006-US and proceed to consider this Information Disclosure Statement.

Serial No.: 10/517,627  
Art Unit: 2859

Attorney's Docket No.: WRA0006-US  
Page 2

It is respectfully requested that the information be expressly considered during the prosecution of this application, and that each reference be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This submission does not represent that any referenced document is material or constitutes "prior art." If it should be determined that one or more of the referenced documents constitute "prior art" under United States law, Applicants reserve the right to present to the Office the relevant facts and law regarding the appropriate status of the reference or references.


Applicants further reserve the right to take appropriate action to establish the patentability of the disclosed invention over any referenced document, should it be applied against the claims of the present application.

PILLSBURY WINTHROP SHAW PITTMAN LLP  
1650 Tysons Boulevard  
McLean, VA 22102  
Tel: (703) 770-7606

Respectfully submitted,

FLEXMAN, ET AL.

Date: August 8, 2006

By:   
for Michael Bednarek  
Registration No. 32,329

MDB/LDE/ge

Customer No. 00909



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO		<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		<b>Application Number</b>	10/517,627
		<b>Filing Date</b>	September 7, 2005
		<b>First Named Inventor</b>	FLEXMAN, et al.
		<b>Art Unit</b>	2859
		<b>Examiner Name</b>	Not Yet Assigned
		<b>Attorney Docket Number</b>	WRA0006-US
<b>Sheet</b>	2	<b>of</b>	4

<b>OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS</b>			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Flexman, et al., "The Detection of Explosives in Airport Luggage Using the Direct Nuclear Quadrupole Resonance Method," Detection of Bulk Explosive Advanced Techniques Against Terrorism, Proceedings of the NATO Advanced Research Workshop held in St. Petersburg, Russia, 16-21 June, 2003, Series: NATO Science Series II: Mathematics, Physics and Chemistry, Schubert, Kuznetsov (eds.) Vol. 138, 2004, pp. 113-124	<input type="checkbox"/>
		Beuss, et al., "Explosive Detection by <sup>14</sup> N Pure NQR," Advances in Analysis and Detection of Explosives, 1993, pp. 361-368	<input type="checkbox"/>
		Horowitz and Hill, "Field Effect Transistors," Chapter 3 In: The Art of Electronics, 2 <sup>nd</sup> Edition, University of Cambridge, USA, 1989	<input type="checkbox"/>
		Floridi, et al., "Fast-Recovery Crossed-Coil Probe for Low Frequency Solid-State NMR," Measurement Science and Technology, Vol. 2, 1991, pp. 934-937	<input type="checkbox"/>
		Decorps, et al., "An Inductively Coupled, Series-Tuned NMR Probe," Journal of Magnetic Resonance, Vol. 65, 1985, pp. 100-109	<input type="checkbox"/>
		Samuelson and Ailion, "Self Switching Damping Circuit for Reducing Transmitter Ringdown Time in High Power Pulse NMR," Review of Scientific Instruments, Vol. 41, No. 11, 1970, pp. 1601-1603	<input type="checkbox"/>
		Suits, et al., "Super-Q Detection of Transient Magnetic Resonance Signals," Journal of Magnetic Resonance, Vol. 132, 1998, pp. 54-56	<input type="checkbox"/>
		Rudakov and Mikhaltsevich, "Damping of Transients in an Excited Circuit of an NQR Spectrometer," Instruments and Experimental Techniques, Vol. 38, No. 6, Part 1, 1995, pp. 744-745	<input type="checkbox"/>
		Kisman and Armstrong, "Coupling Scheme and Probe Damper for Pulsed Nuclear Magnetic Resonance Single Coil Probe," Review of Scientific Instruments, Vol. 45, No. 9, 1974, pp. 1159-1163	<input type="checkbox"/>
		Conradi, "FET Q Switch for Pulsed NMR," The Review of Scientific Instruments, Vol. 48, No. 3, 1977, pp. 359-361	<input type="checkbox"/>
		Roeder, et al., "A Single Coil Probe Damper for Pulsed Nuclear Magnetic Resonance," The Review of Scientific Instruments, Vol. 42, No. 11, 1971, pp. 1692-1693	<input type="checkbox"/>

Examiner Signature		Date Considered	
-----------------------	--	-----------------	--

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO		<b>Complete if Known</b>	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		<b>Application Number</b>	10/517,627
		<b>Filing Date</b>	September 7, 2005
		<b>First Named Inventor</b>	FLEXMAN, et al.
		<b>Art Unit</b>	2859
		<b>Examiner Name</b>	Not Yet Assigned
		<b>Attorney Docket Number</b>	WRA0006-US
<b>Sheet</b>	3	<b>of</b>	4

<b>OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS</b>			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Hoult and Richards, "The Signal-To-Noise Ratio of the Nuclear Magnetic Resonance Experiment," Journal of Magnetic Resonance, Vol. 24, 1976, pp. 71-85	<input type="checkbox"/>
		Hoult, "Fast Recovery With a Conventional Probe," Journal of Magnetic Resonance, Vol. 57, 1984, pp. 394-403	<input type="checkbox"/>
		Hoult, "Fast Recovery, High Sensitivity NMR Probe and Preamplifier for Low Frequencies," Review of Scientific Instruments, Vol. 50, No. 2, 1979, pp. 193-200	<input type="checkbox"/>
		Hirschfeld and Klainer, "Short Range Remote NQR Measurements," Journal of Molecular Structure, Vol. 58, 1980, pp. 63-77	<input type="checkbox"/>
		Stokes, "Tuned Limiter for Receiver Amplifier in a Fast-Recovery Pulsed NMR Spectrometer," Review of Scientific Instruments, Vol. 49, No. 7, 1978, pp. 1011-1012.	<input type="checkbox"/>
		Klainer, et al., "Fourier Transform Nuclear Quadrupole Resonance Spectroscopy," Fourier, Hadamard and Hilbert Transforms in Chemistry, A.G. Marshall, ed., Plenum, NY, 1982, pp. 147-182	<input type="checkbox"/>
		Li, et al., "A Novel Probe Design for Pulsed Nitrogen-14 Nuclear Quadrupole Resonance Spectrometer," Review of Scientific Instruments, Vol. 67, No. 3, 1996, pp. 704-706	<input type="checkbox"/>
		Hwang and Hoult, "Automatic Probe Tuning and Matching," Magnetic Resonance in Medicine, Vol. 39, No. 2, 1998, pp. 214-222	<input type="checkbox"/>
		Reykowski, et al., "Design of Matching Networks for Low Noise Preamplifiers," Magnetic Resonance in Medicine, Vol. 33, No. 6, 1995, pp. 848-852	<input type="checkbox"/>
		Traficante, "Impedance: What it is, and Why it Must be Matched," Concepts in Magnetic Resonance, Vol. 1, 1989, pp. 73-92	<input type="checkbox"/>
		Ramachandran and Narasimhan, "A Coherent Nuclear Quadrupole Pulse and Double Resonance Spectrometer," Journal of Physics E: Scientific Instruments, Vol. 16, 1983, pp. 643-648	<input type="checkbox"/>

<b>Examiner Signature</b>		<b>Date Considered</b>	
-------------------------------	--	------------------------	--

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>		<b>Complete if Known</b>	
		Application Number	10/517,627
		Filing Date	September 7, 2005
		First Named Inventor	FLEXMAN, et al.
		Art Unit	2859
		Examiner Name	Not Yet Assigned
Sheet 4	of 4	Attorney Docket Number	WRA0006-US

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Raad and Darrasse, "Optimization of NMR Receiver Bandwidth by Inductive Coupling," Magnetic Resonance Imaging, Vol. 10, 1992, pp. 55-65	<input type="checkbox"/>
		Petersen, "Low Frequency NQR Matching Network," The NQR Newsletter, edited by RA Marino, 1-2, 1994, pp. 20	<input type="checkbox"/>
		Netzer, "The Design of Low-Noise Amplifiers," Proceedings of the IEEE, Vol. 69, No. 6, 1981, pp. 728-741	<input type="checkbox"/>
		Hirschfeld and Klainer, "Short Range Remote NQR Measurements," Journal of Molecular Structure, Vol. 58, 1980, pp. 63-77	<input type="checkbox"/>
		Harding, et al., "A Pulsed NQR-FFT Spectrometer for Nitrogen-14," Journal of Magnetic Resonance, Vol. 36, 1979, pp. 21-33	<input type="checkbox"/>
		Griffin, et al., "Low-Frequency NMR Spectrometer," Measurement Science and Technology, Vol. 4, 1993, pp. 968-975	<input type="checkbox"/>
		Anferov, et al., "Pulsed Spectrometer for Nuclear Quadrupole Resonance for Remote Detection of Nitrogen in Explosives," Review of Scientific Instruments, Vol. 71, No. 4, 2000, pp. 1656-1659	<input type="checkbox"/>
		Andrew and Jurga, "NMR Probe with Short Recovery Time," Journal of Magnetic Resonance," Vol. 73, 1987, pp. 268-276	<input type="checkbox"/>
		Scott, et al., "Low Field Preamp Matching Design for High Q Receiver Coils," 4 <sup>th</sup> Meeting of the ISMRM, 1996 (NY), p. 396	<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

Examiner Signature		Date Considered	
-----------------------	--	-----------------	--

\* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.